

## CLAIMS

1. (Previously presented) An isolated nucleic acid molecule which is selected from the group consisting of:

- a) a nucleic acid molecule which encodes a polypeptide which contains the amino acid sequence disclosed by SEQ ID NO: 2;
- b) a nucleic acid molecule which contains the sequence depicted by SEQ ID NO: 1;
- c) a nucleic acid molecule which exhibits a sequence identity along its full length with SEQ ID NO: 1 of at least 95% and encodes a polypeptide which has the biological function of a photoprotein; and
- d) a nucleic acid molecule which exhibits a sequence identity along its full length with SEQ ID NO: 1 of at least 65% and encodes a polypeptide which has the biological function of a photoprotein.

2–3. (Canceled)

4. (Previously presented) The nucleic acid as claimed in claim 1, which contains a functional promoter 5' to its coding sequence.

5. (Previously presented) A recombinant DNA or RNA vector which contains the a nucleic acid as claimed in claim 4.

6. (Previously presented) An organism which harbors the vector as claimed in claim 5.

7. (Canceled)

8. (Previously presented) An isolated polypeptide which is encoded by a nucleic acid sequence as claimed in claim 1.

9. (Previously presented) A method for expressing the polypeptide as claimed in claim 8 in bacteria, a viral system, yeast or a eukaryotic cell or in an in-vitro expression system by expressing said polypeptide.

10–13. (Canceled)

14. (Previously presented) The nucleic acid as claimed in claim 1, further comprising a nucleic acid encoding a polypeptide other than that encoded by the nucleic acid of claim 1, wherein a fusion gene is formed and wherein said fusion gene functions as a marker gene or reporter gene.

15. (Previously presented) A photoprotein polypeptide encoded by the fusion gene of claim 14, wherein said photoprotein polypeptide functions as a label or reporter.

16–19. (Canceled)

20. (Previously presented) The polypeptide as claimed in claim 8, wherein said polypeptide functions as a reporter protein in searching for pharmacologically active compounds.

21. (Previously presented) The nucleic acid as claimed in claim 1, wherein said nucleic acid functions as a reporter gene in searching for pharmacologically active compounds.

22. (Previously presented) The polypeptide of claim 8, wherein said polypeptide is coupled to an additional protein.

23. (Previously presented) The conjugate of claim 22, wherein said additional protein is selected from the group consisting of: an antibiotic, an enzyme, a receptor, an antibody and an ion channel.